1498

Protection Branch Report of Test No. 1-61

INVESTIGATION OF BACTERIAL CONTAMINATION INSIDE ELECTRONIC COMPONENTS. TEST III

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INVESTIGATION OF BACTERIAL CONTAMINATION INSIDE ELECTRONIC COMPONENTS. TEST III

A variety of capacitors and resistors, received May 1960 from Goddard Space Flight Laboratories, Washington, D.C., were tested for possible internal bacterial contamination.

MATERIALS AND METHODS

The capacitors and resistors were tested by the procedure described in detail in Protection Branch Report of Test No. 24-60 entitled: "Investigation of Bacterial Contamination Inside Electronic Components. Test II". In addition to breaking the components open to determine internal bacterial contamination, one or two components of the same variety and type per test were put into broth whole in order to determine whether the exterior surfaces were sterilized with ethylene oxide gas in the prescribed six hour exposure period.

RESULTS

Internal bacterial contamination was present in four out of 28 capacitors tested (Table I) and in one of the 24 resistors tested (Table II). The exterior surfaces of all the components tested were sterile after exposure to ethylene oxide gas for six hours.

Table I.

Variety and Number of Capacitors Internally Contaminated

Variety of Capacitors	Manufacturer	No. Contaminated / No. Tested
XRFC-461E223K, .022MFD, 400VDC, CPM09A1KE223K	Gudeman	0/3
3X.0022, Ceramic 4-lead	Sprague	1/1
.05MFC, 1600VDC, GEM 1615	Mallory	2/2
.22MFD, 200VDC	Sangamo	0/2
.002200MF, 1000 WVDC, 56A-D22	Sprague	1/4
Metallized paper, TK, 2.0MF, 200 WVDC	Tobe Deutschman	0/2
Metallized paper, ME, 1.00MF, 200 WVDC	Tobe Deutschman	0/1
Mica, 4.30 MMF	El-Menco	0/4
CC26UJ, 101J, 100MMF, 500V	Hi-Q	0/2
Ceramicon, CC26UJ, 101J, 100MMF, 500V	Erie	0/2
Pup, .25MFD, 400VDC	C&D	0/2*
1.0MFD, 200VDCW70C	Aerovox	0/1*
Temperature Compensating Ceramicon, 3.3MMF 600VDCW	Erie	0/2

* Broth did not support growth of S. aureus introduced.

Table II.

Variety and Number of Resistors Internally Contaminated

Variety of Resistors	Manufacturer	No. Contaminated / No. Tested
51 ohms, 2W	Ohmite	0/4
51 ohms, 2W	Allen-Bradley	1/4
36K ohms, 1/2 W	Stackpole Carbon	0/4
10 ohms, 2W	Stackpole Carbon	0/4
3900 ohms, 1/2 W	Allen-Bradley	0/4
39 ohms, 1/2 W (Insulated metallized)	IRC	0/4